4,413,337 367/155

4,574,632 181/159

116/137R

30 JUL 87 16:13:16 U.S. Patent & Trademark Office P0003

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=> d his
                (FILE USPAT)

                SET PAGELENGTH 19
                SET LINELENGTH 78
L1           69 S HIPPE?
L2            3 S L1 AND (ACOUSTIC? OR SONIC?)

=> d 12 1-3
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1. 4,617,796, Oct. 21, 1986, Sleeve valve for a pulsed gas generator; Janet S. Knapp, et al., 60*39.79, 247

2. 4,564,841, Jan. 14, 1986, Navigational systems using phase encoded angular coordinates; Norman S. Neidell, 342*386, 453; 367*13, 150, 151 [IMAGE AVAILABLE]

16:14:26

30 JUL 87 16:14:29 U.S. Patent & Trademark Office P0004

3. 4,077,107, Mar. 7, 1978, Hot working of metal powders, Jay Hanes
Larson, 419*49; 29*421R, DIG.31; 228*157 [IMAGE AVAILABLE]

=> d 12 1-3 fro

4,617,796 Oct. 21, 1986 L2: 1 of 3
Sleeve valve for a pulsed gas generator

INVENTOR: Janet S. Knapp, Simi Valley, CA
Jerry L. Hillman, Langlois, OR
ASSIGNEE: Rockwell International Corporation, El Segundo, CA (U.S. corp.)
APPL-NO: 6/713,209
DATE FILED: Mar. 18, 1985
INT-CL: [4] F02K 7*06
16:15:20
30 JUL 87 16:15:25 U.S. Patent & Trademark Office P0005

4,617,796 Oct. 21, 1986 L2: 1 of 3
Sleeve valve for a pulsed gas generator

US-CL-ISSUED: 60*39.79, 247
US-CL-CURRENT: 60*39.79, 247
SEARCH-FLD: 60*233, 39.76, 39.77, 39.78, 39.79, 39.8, 39.81, 247, 248, 249, 221, 222
REF-CITED:

U.S. PATENT DOCUMENTS

2,714,800	8/1955	Gongwer	60*221
3,060,682	10/1962	Kemenczky	60*247
3,264,824	8/1966	Bost	60*247
3,279,178	10/1966	Kemenczky	60*221
4,258,546	3/1981	Stratton	60*259

PRIM-EXMR: Louis J. Casaregola
LEGAL-REP: H. Fredrick Hamann, Harry B. Field, Lawrence N. Ginsberg
16:15:25
30 JUL 87 16:15:35 U.S. Patent & Trademark Office P0006

4,617,796 Oct. 21, 1986 L2: 1 of 3
Sleeve valve for a pulsed gas generator

ABSTRACT:
The combination of a pulsed rocket engine 12 and a sleeve valve 10 coupled to the engine output and receiving in its internal chamber 16 the gas generated by the engine 12. The sleeve valve 10 has a movable sleeve 24 with ports 26, 28 therethrough surrounding the wall 18 of the chamber 16, the wall 18 having ports 38, 40 which axially align with the sleeve ports 26, 28 in the valve's open position to allow rapid discharge of the contents of the chamber 16. The sleeve is ordinarily biased to a closed, or non-aligned, position for the ports by a spring 32. When the gas pressure in the chamber 16 reaches a predetermined amount, a pressure sensor 54 commands a gas source to send pressurized gas into the valve 10 to force the sleeve 24 into its open position against the bias of the spring 32, thereby aligning the ports 26, 28
16:15:35
30 JUL 87 16:15:46 U.S. Patent & Trademark Office P0007

4,617,796 Oct. 21, 1986 L2: 1 of 3
Sleeve valve for a pulsed gas generator

and 38, 40 and allowing rapid discharge of the gas from the sleeve-valve chamber 16.

6 Claims, 1 Drawing Figures

4,564,841 [IMAGE AVAILABLE] Jan. 14, 1986 L2: 2 of 3
Navigational systems using phase encoded angular coordinates

REL-US-DATA: Continuation of Ser. No. 225,410, Jan. 15, 1981, abandoned, which is a continuation-in-part of Ser. No. 76,695, Sep. 18, 1979, Pat. No. 4,315,263, which is a continuation of Ser. No. 925,903, Jul. 19, 1978, which is a continuation-in-part of Ser. No. 691,674, Jun. 1, 1976, Pat. No. 4,114,153, Jun. 12, 1978, which is a continuation of Ser. No. 483,202, Jul. 26, 1974, abandoned.
INT-CL: [4] G01S 1*08
US-CL-ISSUED: 343*386, 453; 367*151, 13, 150
US-CL-CURRENT: 342*386, 453; 367*13, 150, 151
SEARCH-FLD: 343*9R, 385, 386, 450, 451, 453, 786, 771; 367*13, 150, 151; 340*850; 73*64.3

REF-CITED:

U.S. PATENT DOCUMENTS

2,920,320	1/1960	Ross	343*453
3,430,234	2/1969	Wright	
3,534,399	10/1970	Hirsch	
3,829,860	8/1974	Cutler et al.	343*9
3,941,984	3/1976	Chappell et al.	
3,943,514	3/1976	Afendykiw et al.	343*453
4,028,699	6/1977	Stevens	343*9
4,207,523	6/1980	Acker	371*6
4,413,331	11/1983	Rowe, Jr. et al.	367*155

FOREIGN PATENT DOCUMENTS

690889	4/1953	United Kingdom	367*151

OTHER PUBLICATIONS

K. E. Karwarth, Journal of the Institute of Navigation, vol. 24, No. 1, pp. 105-120, Jan. 1, 1971.

PRIM-EXMR: Theodore M. Blum
LEGAL-REP: Pravel, Gambrell, Hewitt & Kimball

ABSTRACT:
Navigation systems which position one or more mobile platforms in real time with appropriate accuracy in reference to a known system of coordinates by

the emission of signals into a propagation medium and processing them after detection are disclosed. Broad-band, broad-beam signals are employed. All

received signals convey phase encoded angular coordinate information which characterizes the particular signal path. Phase encoding of angular information is effected by suitably configured "lenses" of dispersive materials or by post-critical angle reflection from a suitably configured reflector and shield combination. When the angular coordinate information is used in conjuction with range determinations from detected signals, an especially useful navigation system is provided which can operate from a single reference station.

28 Claims, 13 Drawing Figures

16:16:22
30 JUL 87 16:16:32 U.S. Patent & Trademark Office P0012

4,077,109 [IMAGE AVAILABLE] Mar. 7, 1978 L2: 3 of 3
Hot working of metal powders

INVENTOR: Jay Michael Larson, Warwick, NY
ASSIGNEE: The International Nickel Company, Inc., New York, NY (U.S. corp.)
APPL-NO: 5/684,479
DATE FILED: May 10, 1976
INT-CL: [2] B22F 3*24
US-CL-ISSUED: 29*420; 264*111; 29*421R, DIG.310
US-CL-CURRENT: 419*49; 29*421R, DIG.31; 228*157
SEARCH-FLD: 75*223, 214, 226; 29*420, 421, 420.5; 264*111, 121
REF-CITED:

U.S. PATENT DOCUMENTS

2,725,288	11/1955	Dodds et al.	75*226

16:16:32
30 JUL 87 16:16:41 U.S. Patent & Trademark Office P0013

4,077,109 [IMAGE AVAILABLE] Mar. 7, 1978 L2: 3 of 3
Hot working of metal powders

3,741,755	6/1973	Allen	29*420
3,807,009	4/1974	Ostbo	29*421R
3,895,436	7/1975	Summers et al.	29*421R

PRIM-EXMR: E. M. Combs
ASST-EXMR: V. K. Rising
LEGAL-REP: George N. Ziegler, Ewan C. MacQueen

ABSTRACT:
Metal powders are hot isostatically pressed in a can or container produced from superplastic metal sheet.

4 Claims, 4 Drawing Figures

16:16:41
30 JUL 87 16:16:50 U.S. Patent & Trademark Office P0014

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=> s l1 and (367/clas or 181/clas)
         10558 367/CLAS
         12540 181/CLAS
L3            1 L1 AND (367/CLAS OR 181/CLAS)

=> d l3 fro
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4,564,841 [IMAGE AVAILABLE] Jan. 14, 1986 L3: 1 of 1
Navigational systems using phase encoded angular coordinates

INVENTOR: Norman S. Neidell, 10497 Town & Country Way Suite 300, Houston, TX 77024
APPL-NO: 6/715,052
DATE FILED: Mar. 22, 1985
16:18:47
30 JUL 87 16:18:50 U.S. Patent & Trademark Office P0015

4,564,841 [IMAGE AVAILABLE] Jan. 14, 1986 L3: 1 of 1
Navigational systems using phase encoded angular coordinates

REL-US-DATA: Continuation of Ser. No. 225,410, Jan. 15, 1981, abandoned, which is a continuation-in-part of Ser. No. 76,695, Sep. 18, 1979, Pat. No. 4,315,263, which is a continuation of Ser. No. 925,903, Jul. 19, 1978, which is a continuation-in-part of Ser. No. 691,674, Jun. 1, 1976, Pat. No. 4,114,153, Jun. 12, 1978, which is a continuation of Ser. No. 483,202, Jul. 26, 1974, abandoned.
INT-CL: [4] G01S 1*08
US-CL-ISSUED: 343*386, 453; 367*151, 13, 150
US-CL-CURRENT: 342*386, 453; 367*13, 150, 151
SEARCH-FLD: 343*9R, 385, 386, 450, 451, 453, 786, 771; 367*13, 150, 151; 340*850; 73*64.3
16:18:50
30 JUL 87 16:19:00 U.S. Patent & Trademark Office P0016

4,564,841 [IMAGE AVAILABLE] Jan. 14, 1986 L3: 1 of 1
Navigational systems using phase encoded angular coordinates

REF-CITED:

U.S. PATENT DOCUMENTS

2,920,320	1/1960	Ross	343*453
3,430,234	2/1969	Wright	
3,534,399	10/1970	Hirsch	
3,829,860	8/1974	Cutler et al.	343*9
3,941,984	3/1976	Chappell et al.	
3,943,514	3/1976	Afendykiw et al.	343*453
4,028,699	6/1977	Stevens	343*9
4,207,523	6/1980	Acker	371*6
4,413,331	11/1983	Rowe, Jr. et al.	367*155

16:19:01
30 JUL 87 16:19:10 U.S. Patent & Trademark Office P0017

4,564,841 [IMAGE AVAILABLE] Jan. 14, 1986 L3: 1 of 1
Navigational systems using phase encoded angular coordinates

FOREIGN PATENT DOCUMENTS

690889	4/1953	United Kingdom	367*151

OTHER PUBLICATIONS

K. E. Karwarth, Journal of the Institute of Navigation, vol. 24, No. 1, pp. 105-120, Jan. 1, 1971.

PRIM-EXMR: Theodore M. Blum
LEGAL-REP: Pravel, Gambrell, Hewitt & Kimball

ABSTRACT:
Navigation systems which position one or more mobile platforms in real time with appropriate accuracy in reference to a known system of coordinates by
16:19:10
30 JUL 87 16:19:19 U.S. Patent & Trademark Office P0018

4,564,841 [IMAGE AVAILABLE] Jan. 14, 1986 L3: 1 of 1
Navigational systems using phase encoded angular coordinates

the emission of signals into a propagation medium and processing them after detection are disclosed. Broad-band, broad-beam signals are employed. All received signals convey phase encoded angular coordinate information which characterizes the particular signal path. Phase encoding of angular information is effected by suitably configured "lenses" of dispersive materials or by post-critical angle reflection from a suitably configured reflector and shield combination. When the angular coordinate information is used in conjuction with range determinations from detected signals, an especially useful navigation system is provided which can operate from a single reference station.

28 Claims, 13 Drawing Figures

16:19:19
30 JUL 87 16:19:29 U.S. Patent & Trademark Office P0019

=> s l1 and (sound? or noise?)
36067 SOUND?
56469 NOISE?
L4 5 L1 AND (SOUND? OR NOISE?)

=> d l4 1-5

1. 4,610,114, Sep. 9, 1986, Metal frame homes; Don R. Rodriguez, 52*93, 90, 94, 648

2. 4,564,841, Jan. 14, 1986, Navigational systems using phase encoded angular coordinates; Norman S. Neidell, 342*386, 453; 367*13, 150, 151 [IMAGE AVAILABLE]

3. 4,437,287, Mar. 20, 1984, Ceiling panel; Thomas C. Halfaker, 52*588, 145, 406
16:23:40
30 JUL 87 16:23:44 U.S. Patent & Trademark Office P0020

4. 3,996,349, Dec. 7, 1976, Attractant compositions; Mir S. Mulla, et al., 424*84

5. 3,975,690, Aug. 17, 1976, Planar transmission line comprising a material having negative differential conductivity; Paul L. Fleming, 330*5, 53; 333*246; 357*3

=> s l1 and (water? or underwater? or ocean? or marine?)
5229 UNDERWATER?
5221 OCEAN?
16:28:51974 MARINE?
30 JUL 87 16:28:51 U.S. Patent & Trademark Office P0021
L5 30 L1 AND (WATER? OR UNDERWATER? OR OCEAN? OR MARINE?)

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=> s rocket? and (181/clas or 367/clas)
3370 ROCKET?
12540 181/CLAS
10558 367/CLAS
L6 24 ROCKET? AND (181/CLAS OR 367/CLAS)

=> d l6 1-24

1. 4,653,032, Mar. 24, 1987, Arrangement for the determination of the direction and/or distance of objects by means of water-borne sound waves; Hans D. Schwarz, et al., 367*113 [IMAGE AVAILABLE]

2. 4,574,632, Mar. 11, 1986, Method for generating high frequency high level
16:31:15
30 JUL 87 16:31:17 U.S. Patent & Trademark Office P0022

noise fields using low frequency excitation of aeroacoustic noise; John H. Woolley, et al., 73*571; 116*137R; 181*159; 331*155

3. 4,462,483, Jul. 31, 1984, Solid propellant sound generator for coagulation of aerosols; Robert E. Betts, et al., 181*142; 116*137R [IMAGE AVAILABLE]

4. 4,448,106, May 15, 1984, Method of identifying hard targets; Richard D. Knapp, 89*1.11; 102*501, 513; 342*5; 367*1 [IMAGE AVAILABLE]

5. 4,405,985, Sep. 20, 1983, Guidance computer; Eldon C. Hall, et al.,

6. 4,372,239, Feb. 8, 1983, Undersea weapon with hydropulse system and periodical seawater admission; Allen C. Hagelberg, et al., 114*20.2, 25; 367*96, 133 [IMAGE AVAILABLE]

7. 4,350,917, Sep. 21, 1982, Frequency-controlled scanning of ultrasonic beams; Frederic L. Lizzi, et al., 310*320; 128*660; 310*335, 369; 333*186; 367*101, 103, 121, 157 [IMAGE AVAILABLE]

8. 4,349,898, Sep. 14, 1982, Sonic weapon system; William Drewes, et al., 367*138; 89*1.11; 367*92, 95, 139 [IMAGE AVAILABLE]

9. 4,319,660, Mar. 16, 1982, Mechanical noise suppressor for small rocket motors; Charles R. Bishop, 181*222, 258

10. 4,312,054, Jan. 19, 1982, Acoustic beacons; Bard Holand, 367*134, 137, 142, 910 [IMAGE AVAILABLE]

11. 4,307,665, Dec. 29, 1981, Decoy rounds; Kenneth A. Block, et al., 102*505; 89*6.5; 102*357; 149*42; 342*12; 367*1 [IMAGE AVAILABLE]

12. 4,305,142, Dec. 8, 1981, Ballistic impact sensing and display system; Barry R. Springer, 367*127; 273*372; 367*906 [IMAGE AVAILABLE]

13. 4,257,224, Mar. 24, 1981, Method and apparatus for controlling the mixing of two fluids; Israel Wygnanski, et al., 60*204, 749; 181*220; 366*108, 119; 417*198

14. 4,221,004, Sep. 2, 1980, Adjustable ultrasonic level measurement device; Charles M. Combs, et al., 367*114; 73*290V; 367*112, 137, 900, 902, 908 [IMAGE AVAILABLE]

15. 4,203,160, May 13, 1980, Submarine communication; John J. Doherty, 367*2, 6, 132, 134 [IMAGE AVAILABLE]

16. 4,183,302, Jan. 15, 1980, Sequential burst system; George H. Schillreff,

102*377, 505; 342*12; 367*1 [IMAGE AVAILABLE]

17. 4,153,134, May 8, 1979, Underwater seismic source; Lien C. Yang, 181*120, 115; 367*142

24 3,903,988 181/142 116/137A

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e christoff/inv
E1            3 CHRISTOFAS, ALKIS/INV
E2           11 CHRISTOFER, DONALD E./INV
E3            Ø CHRISTOFF/INV
E4            1 CHRISTOFF, CHRIS A./INV
E5            1 CHRISTOFF, ELIZABETH/INV
E6            1 CHRISTOFF, JAMES T./INV
E7            1 CHRISTOFF, JAMES W./INV
E8            2 CHRISTOFF, PAUL B./INV
E9            2 CHRISTOFF, WILLIAM J./INV
16:38:Ø6 COPY AND CLEAR PAGE, PLEASE
3Ø eJUL 87 16:38:16              U.S. Patent & Trademark Office          P0028
E1Ø           1 CHRISTOFFEL, EDDIE W./INV
E11           6 CHRISTOFFEL, JR., JULIUS M./INV
E12           1 CHRISTOFFEL, REINHOLD/INV

=> s e9
L7            2 "CHRISTOFF, WILLIAM J."/INV

=> d l7 1-2

1.  4,514,976, May 7, 1985, Integrated auxiliary power and environmental
control unit; William J. Christoff, 6Ø*39.Ø7, 39.15, 39.183

2.  4,5Ø3,666, Mar. 12, 1985, Aircraft environmental control system with
auxiliary power output; William J. Christoff, 6Ø*39.Ø7, 39.183

=> d l7 1-2 fro
16:39:Ø1 COPY AND CLEAR PAGE, PLEASE
3Ø JUL 87 16:39:Ø7              U.S. Patent & Trademark Office          P0029

4,514,976                        May 7, 1985                 L7: 1 of 2
        Integrated auxiliary power and environmental control unit

INVENTOR:       William J. Christoff, Thousand Oaks, CA
ASSIGNEE:       Rockwell International Corporation, El Segundo, CA (U.S.
                  corp.)
APPL-NO:        6/422,118
DATE FILED:     Sep. 23, 1982
```

abandoned.
INT-CL: [3] F02C 6*08
US-CL-ISSUED: 60*39.07, 39.15, 39.183
US-CL-CURRENT: 60*39.07, 39.15, 39.183
SEARCH-FLD: 60*39.07, 39.142, 39.15, 39.183, 39.33; 98*1.5
REF-CITED:

U.S. PATENT DOCUMENTS

16:39:07 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:39:17 U.S. Patent & Trademark Office P0030

4,514,976 May 7, 1985 L7: 1 of 2
Integrated auxiliary power and environmental control unit

2,777,301	1/1957	Kuhn	62*178
3,101,926	8/1963	Weber	415*164
3,799,694	3/1974	Duzan	415*211
3,965,673	6/1976	Friedrich	60*39.15
4,091,613	5/1978	Young	60*39.07

PRIM-EXMR: Louis J. Casaregola
LEGAL-REP: H. Fredrick Hamann, Harry B. Field

ABSTRACT:
An integrated auxiliary power unit and environmental control unit for an airplane 2, said integrated unit 2 comprising a prime mover 4, a variable geometry compressor 22 operable selectably by bleed air from the propulsion engine of said airplane or connectable via an overrunning clutch 18 to said
16:39:17 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:39:28 U.S. Patent & Trademark Office P0031

4,514,976 May 7, 1985 L7: 1 of 2
Integrated auxiliary power and environmental control unit

prime mover, a controlled emission turbine 24 which is shaft-coupled to said compressor 22 and cooperating with said compressor to form an environmental control unit, and means for diverting a portion of the output of said compressor for use as an auxiliary power unit.
1 Claims, 3 Drawing Figures

4,503,666 Mar. 12, 1985 L7: 2 of 2
Aircraft environmental control system with auxiliary power output

INVENTOR: William J. Christoff, Thousand Oaks, CA
ASSIGNEE: Rockwell International Corporation, El Segundo, CA (U.S. corp.)
16:39:28 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:39:37 U.S. Patent & Trademark Office P0032

4,503,666 Mar. 12, 1985 L7: 2 of 2
Aircraft environmental control system with auxiliary power output

APPL-NO: 6/494,824
DATE FILED: May 16, 1983
INT-CL: [3] F02C 6*08
US-CL-ISSUED: 60*39.07, 39.183
US-CL-CURRENT: 60*39.07, 39.183
SEARCH-FLD: 60*39.07, 39.142, 39.183, 39.33; 62*323.4, DIG.5; 98*1.5
REF-CITED:

U.S. PATENT DOCUMENTS

2,618,470	11/1952	Brown et al.	60*39.07
2,772,621	12/1956	Arnoldi	60*39.07
2,777,301	1/1957	Kuhn	60*39.07
3,965,673	6/1976	Friedrich	60*39.142

16:39:37 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:39:47 U.S. Patent & Trademark Office P0033

Aircraft environmental control system with auxiliary power output

4,Ø91,613 5/1978 Young 6Ø*39.Ø7
PRIM-EXMR: Louis J. Casaregola
LEGAL-REP: H. Fredrick Hamann, Harry B. Field

ABSTRACT:
An environmental control system for a jet aircraft has a single compressor coupled to a cooling turbine and an auxiliary power turbine. The compressor provides air to both turbines. Air to the power turbine is mixed with fuel to form combustion gases to drive the turbine. Air to the cooling turbine is cooled by expansion and used for air conditioning the aircraft cabin. The auxiliary power turbine can be decoupled and the compressor driven by the cooling turbine, which is powered by bleed air from the main engine of the aircraft.
16:39:47 COPY AND CLEAR PAGE, PLEASE
3Ø JUL 87 16:4Ø:ØØ U.S. Patent & Trademark Office P0034

4,5Ø3,666 Mar. 12, 1985 L7: 2 of 2
Aircraft environmental control system with auxiliary power output

8 Claims, 1 Drawing Figures

=> e nestlerode/inv
E1 1 NESTLER, VOLKER/INV
E2 1 NESTLER, WALTER/INV
E3 Ø NESTLERODE/INV
E4 5 NESTON/INV
E5 1 NESTON, CORSHAM, WILTSHIRE/INV
E6 1 NESTON, WIRRAL/INV
E7 2Ø NESTOR, CHARLES R./INV
E8 2 NESTOR, DAVID WILLIAM/INV
E9 11 NESTOR, JACK/INV
16:4Ø:21 COPY AND CLEAR PAGE, PLEASE
3Ø JUL 87 16:4Ø:27 U.S. Patent & Trademark Office P0035
E1Ø 1Ø NESTOR, JOHN J./INV
E11 1 NESTOR, JOHN M./INV
E12 5 NESTOR, JR., JOHN J./INV

=> e johanson/inv
E1 2 JOHANSING, JR., P. G./INV
E2 1 JOHANSING, JR., PAUL G./INV
E3 Ø JOHANSON/INV
E4 1 JOHANSON, BENGT INGEMAR/INV
E5 1 JOHANSON, CARL E./INV
E6 1 JOHANSON, DAVID C./INV
E7 1 JOHANSON, DECEASED, JOHN E./INV
E8 5 JOHANSON, DONALD L./INV
E9 1 JOHANSON, EDWARD E./INV
E1Ø 2 JOHANSON, EDWARD W./INV
E11 7 JOHANSON, EDWIN S./INV
16:4Ø:41 COPY AND CLEAR PAGE, PLEASE
3Ø JUL 87 16:4Ø:48 U.S. Patent & Trademark Office P0036
E12 1 JOHANSON, FREDRICK R./INV

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E13 1 JOHANSON, JAMES G./INV
E14 3 JOHANSON, JERRY R./INV
E15 5 JOHANSON, JOHN E./INV
E16 1 JOHANSON, LARS/INV
E17 1 JOHANSON, LEONARD T./INV
E18 1 JOHANSON, LLOYD A./INV
E19 2 JOHANSON, NORMAN E./INV
E2Ø 1 JOHANSON, PETER A./INV
E21 1 JOHANSON, RALPH E./INV

E23 1 JOHANSON, ROY W./INV
E24 1 JOHANSON, SANDRA L./INV

16:40:51 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:41:01 U.S. Patent & Trademark Office P0037
=> s e13
L8 1 "JOHANSON, JAMES G."/INV

=> d l8 fro

4,379,718 Apr. 12, 1983 L8: 1 of 1
Process for separating solid particulates from a melt

INVENTOR: LeRoy F. Grantham, Calabasas, CA
James G. Johanson, Malibu Lake, CA
ASSIGNEE: Rockwell International Corporation, El Segundo, CA (U.S. corp.)
APPL-NO: 6/264,496
DATE FILED: May 18, 1981
INT-CL: [3] C22B 21*00
US-CL-ISSUED: 75*24, 63, 68R, 93R, 93AC; 423*466, 491
16:41:17 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:41:22 U.S. Patent & Trademark Office P0038

4,379,718 Apr. 12, 1983 L8: 1 of 1
Process for separating solid particulates from a melt

US-CL-CURRENT: 75*24, 63, 68R, 93AC, 93R; 426*466, 491
SEARCH-FLD: 75*24, 68R, 63, 93R, 93AC; 423*466, 491
REF-CITED:

U.S. PATENT DOCUMENTS

811,522	1/1906	Seaman	75*24
2,987,391	6/1961	Foster et al.	75*68
3,694,190	9/1972	Langston	75*68R
3,798,024	3/1974	Murphy et al.	75*68R
3,801,003	4/1974	Racunas et al.	233*3
3,846,123	11/1974	Racunas et al.	75*68R
4,024,056	5/1977	Yarwood et al.	210*69
4,073,644	2/1978	Papafingos et al.	75*68R

16:41:22 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:41:41 U.S. Patent & Trademark Office P0039

4,379,718 Apr. 12, 1983 L8: 1 of 1
Process for separating solid particulates from a melt

FOREIGN PATENT DOCUMENTS

416401	6/1974	U. S. S. R.	266*235

PRIM-EXMR: M. J. Andrews
LEGAL-REP: Clark E. DeLarvin, Henry Kolin, H. Fredrick Hamann

ABSTRACT:
A process for treating a metal recovery byproduct which contains solid ash constituents entrained in a melt comprising a major amount of a molten salt and a minor amount of molten metal in which the melt is filtered through a high-temperature filter apparatus containing a cylindrical rotating filter element to separately and continuously recover a filter cake containing the solid ash constituents and a molten filtrate containing the molten salt and
16:41:41 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:41:52 U.S. Patent & Trademark Office P0040

4,379,718 Apr. 12, 1983 L8: 1 of 1
Process for separating solid particulates from a melt

molten metal. This molten filtrate may be directly recycled to the metal

recover the salt therefrom for recycle to the metal recovery process. The invention is particularly applicable to the recovery of aluminum from its dross while removing ecologically damaging materials present in the ash.
9 Claims, 2 Drawing Figures

=> d l5 1-3Ø

1. RE 32,449, Jun. 3Ø, 1987, Ceramic body of zirconium dioxide (ZrO.sub.2) and method for its preparation; Nils Claussen, et al., 5Ø1*1Ø3; 264*6Ø; 5Ø1*1Ø4, 1Ø5, 152; 623*22
16:42:24 COPY AND CLEAR PAGE, PLEASE
3Ø JUL 87 16:42:28 U.S. Patent & Trademark Office P@@41

2. 4,666,341, May 19, 1987, Mobile sea barge and plateform; Almeron J. Field, et al., 4Ø5*217; 114*4Ø; 4Ø5*195, 2Ø3

3. 4,627,767, Dec. 9, 1986, Mobile sea barge and platform; Almeron J. Field, et al., 4Ø5*196; 114*264; 4Ø5*2Ø3, 2Ø4, 2Ø8

4. 4,617,796, Oct. 21, 1986, Sleeve valve for a pulsed gas generator; Janet S. Knapp, et al., 6Ø*39.79, 247

5. 4,596,493, Jun. 24, 1986, Apparatus and method for the performance of work on submerged articles; Benjamin Tisdale, et al., 4Ø5*185; 37*63; 4Ø5*74, 158

6. 4,564,841, Jan. 14, 1986, Navigational systems using phase encoded angular coordinates; Norman S. Neidell, 342*386, 453; 367*13, 15Ø, 151 [IMAGE AVAILABLE]
16:42:28 COPY AND CLEAR PAGE, PLEASE
3Ø JUL 87 16:42:38 U.S. Patent & Trademark Office P@@42

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1Ø. 4,519,118, May 28, 1985, Hot mill self-centering roll design; George Shinopulos, et al., 29*121.5, 527.7; 72*2Ø@, 236
16:42:39 COPY AND CLEAR PAGE, PLEASE
3Ø JUL 87 16:42:47 U.S. Patent & Trademark Office P@@43

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13. 4,457,365, Jul. 3, 1984, In situ radio frequency selective heating system; Raymond S. Kasevich, et al., 166*6Ø, 68, 248, 3Ø2; 219*1Ø.55R

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15. 4,427,58Ø, Jan. 24, 1984, Method for separation and recovery of proteins

John E. Kinsella, et al., 530*358; 426*656; 530*371, 420, 821, 825

16. RE 31,374, Sep. 6, 1983, Countercurrent decantation; Christopher C. Dell, 210*800, 521, 534, 540

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18. 4,312,883, Jan. 26, 1982, Furocoumarin for the photochemotherapy of psoriasis and related skin diseases; Francarosa Baccichetti, et al., 514*455; 548*463; 549*282, 289

19. 4,304,996, Dec. 8, 1981, Water sterilizer and organic matter measurement instrument; Frederick K. Blades, 250*373, 435, 455.1

20. 4,301,865, Nov. 24, 1981, In situ radio frequency selective heating

process and system; Raymond S. Kasevich, et al., 166*248, 52, 60, 65.1, 271

21. 4,283,427, Aug. 11, 1981, Microwave heating package, method and susceptor composition; William C. Winters, et al., 426*107; 206*524.1, 524.3; 219*10.55E, 10.55M, 10.55R; 252*1; 426*234 [IMAGE AVAILABLE]

22. 4,280,972, Jul. 28, 1981, Combination thermoplastic and glass loaded thermosetting injection molding machine and method for operating same; Thomas G. Bishop, 264*39, 297.2, 328.18, 328.4; 425*185, 190, 192R

23. 4,266,108, May 5, 1981, Microwave heating device and method; George R. Anderson, et al., 219*10.55E; 99*451; 219*10.55M; 252*62.56; 426*107, 243

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sulfided nickel and molybdenum catalyst; Ivor W. Mills, et al., 208*143, 14, 254H, 264

=> d 15 4 fro

INVENTOR: Janet S. Knapp, Simi Valley, CA
Jerry L. Hillman, Langlois, OR
ASSIGNEE: Rockwell International Corporation, El Segundo, CA (U.S. corp.)
APPL-NO: 6/713,209
DATE FILED: Mar. 18, 1985
INT-CL: [4] F02K 7*06
16:44:48 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:44:54 U.S. Patent & Trademark Office P0048

4,617,796 Oct. 21, 1986 L5: 4 of 30
Sleeve valve for a pulsed gas generator

US-CL-ISSUED: 60*39.79, 247
US-CL-CURRENT: 60*39.79, 247
SEARCH-FLD: 60*233, 39.76, 39.77, 39.78, 39.79, 39.8, 39.81, 247, 248, 249, 221, 222
REF-CITED:

U.S. PATENT DOCUMENTS

2,714,800	8/1955	Gongwer	60*221
3,060,682	10/1962	Kemenczky	60*247
3,264,824	8/1966	Bost	60*247
3,279,178	10/1966	Kemenczky	60*221
4,258,546	3/1981	Stratton	60*259

PRIM-EXMR: Louis J. Casaregola
LEGAL-REP: H. Fredrick Hamann, Harry B. Field, Lawrence N. Ginsberg
16:44:54 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:45:05 U.S. Patent & Trademark Office P0049

4,617,796 Oct. 21, 1986 L5: 4 of 30
Sleeve valve for a pulsed gas generator

ABSTRACT:
The combination of a pulsed rocket engine 12 and a sleeve valve 10 coupled to the engine output and receiving in its internal chamber 16 the gas generated by the engine 12. The sleeve valve 10 has a movable sleeve 24 with ports 26, 28 therethrough surrounding the wall 18 of the chamber 16, the wall 18 having ports 38, 40 which axially align with the sleeve ports 26, 28 in the valve's open position to allow rapid discharge of the contents of the chamber 16. The sleeve is ordinarily biased to a closed, or non-aligned, position for the ports by a spring 32. When the gas pressure in the chamber 16 reaches a predetermined amount, a pressure sensor 54 commands a gas source to send pressurized gas into the valve 10 to force the sleeve 24 into its open position against the bias of the spring 32, thereby aligning the ports 26, 28
16:45:05 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:46:17 U.S. Patent & Trademark Office P0050

4,617,796 Oct. 21, 1986 L5: 4 of 30
Sleeve valve for a pulsed gas generator

and 38, 40 and allowing rapid discharge of the gas from the sleeve-valve chamber 16.
6 Claims, 1 Drawing Figures

=> d l6 1-2 fro

4,653,032 [IMAGE AVAILABLE] Mar. 24, 1987 L6: 1 of 24
Arrangement for the determination of the direction and/or distance of objects by means of water-borne sound waves

INVENTOR: Hans D. Schwarz, Am Querkamp 58, Bremen, Federal Republic of Germany
16:47:13 COPY AND CLEAR PAGE, PLEASE

4,653,Ø32 [IMAGE AVAILABLE] Mar. 24, 1987 L6: 1 of 24
Arrangement for the determination of the direction and/or distance of objects by means of water-borne sound waves

Werner Thomsen, Seestr. 25, Plon/Holstein, Federal Republic of Germany
APPL-NO: 4/866,434
DATE FILED: Oct. 1Ø, 1969
INT-CL: [4] GØ1S 7*62; GØ1S 15*Ø6
US-CL-ISSUED: 367*113
US-CL-CURRENT: 367*113
SEARCH-FLD: 34Ø*3R, 5R, 6R; 114*2Ø-24; 367*99, 113
REF-CITED:

U.S. PATENT DOCUMENTS

3,148,651 9/1964 Ray 114*21

16:47:17 COPY AND CLEAR PAGE, PLEASE
3Ø JUL 87 16:47:26 U.S. Patent & Trademark Office P ØØ52

4,653,Ø32 [IMAGE AVAILABLE] Mar. 24, 1987 L6: 1 of 24
Arrangement for the determination of the direction and/or distance of objects by means of water-borne sound waves

3,419,845 12/1968 Thiede et al. 34Ø*3

PRIM-EXMR: Richard A. Farley
LEGAL-REP: Wolf, Greenfield & Sacks

ABSTRACT:
The system is for determining the direction and/or distance of objects and, especially of watercrafts, by means of water-borne sound waves transmitted from the ship to a torpedo, for example. The system includes a cathode ray tube located on the ship for displaying sectors of interest, at least one storage means at the torpedo for storage and delivery of sound location data and being connected to a length of wire for transmitting stored location data over the wire to the ship, a controllable threshold discriminator connected
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3Ø JUL 87 16:47:3Ø U.S. Patent & Trademark Office P ØØ53

4,653,Ø32 [IMAGE AVAILABLE] Mar. 24, 1987 L6: 1 of 24
Arrangement for the determination of the direction and/or distance of objects by means of water-borne sound waves

to the storage means, and means for limiting the frequency bandwidth of data signals transmitted over the communication wire to an order of magnitude of 5ØØ Hz.

16 Claims, 2 Drawing Figures

4,574,632 Mar. 11, 1986 L6: 2 of 24
Method for generating high frequency high level noise fields using low frequency excitation of aeroacoustic noise

INVENTOR: John H. Woolley, Ottawa, Canada
Robert Westley, Kanata, Canada
16:47:3Ø COPY AND CLEAR PAGE, PLEASE
3Ø JUL 87 16:47:46 U.S. Patent & Trademark Office P ØØ54

4,574,632 Mar. 11, 1986 L6: 2 of 24
Method for generating high frequency high level noise fields using low frequency excitation of aeroacoustic noise

Carl P. Swail, Ottawa, Canada
ASSIGNEE: Canadian Patents and Development Limited-Societe Canadienne des Brevets et d'Exploitation Limitee, Ontario, Canada (foreign corp.)
APPL-NO: 6/66Ø,425

FRN-PRIOR: Oct. 28, 1983 Canada 439980
INT-CL: [4] G01N 29*00
US-CL-ISSUED: 73*571; 331*155; 116*137R
US-CL-CURRENT: 73*571; 116*137R; 181*159; 331*155
SEARCH-FLD: 73*571; 331*78, 155; 181*159, 160, 182; 116*137R
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30 JUL 87 16:47:57 U.S. Patent & Trademark Office P0055

REF-CITED:

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1,784,596	12/1930	Hutchison	181*182
2,424,357	7/1947	Horsley	116*137
2,424,375	7/1947	Allen	116*137
2,458,043	1/1949	Zenner	179*108
2,532,229	11/1950	Horsley	116*137
2,975,751	3/1961	Bodine	116*137
3,124,099	3/1964	Skilling	116*137
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30 JUL 87 16:48:07 U.S. Patent & Trademark Office P0056

4,574,632 Mar. 11, 1986 L6: 2 of 24
Method for generating high frequency high level noise fields using low frequency excitation of aeroacoustic noise

3,169,507	2/1965	Rich	116*137
3,302,301	2/1967	Goble	34*99
3,376,847	4/1968	Cheeseman	116*137
3,598,081	8/1971	Houten	116*137
3,701,334	10/1972	Teitelbaum	116*137
4,181,193	1/1980	Issac et al.	181*159

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30 JUL 87 16:48:16 U.S. Patent & Trademark Office P0057

4,574,632 Mar. 11, 1986 L6: 2 of 24
Method for generating high frequency high level noise fields using low frequency excitation of aeroacoustic noise

Collinear Interaction of Noise with a Finite-Amplitude Tone, Webster and Blackstock, pp. 687-693.
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Design Characteristics of Gas-Jet Generators, Borisov, 1979, pp. 21-25.
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PRIM-EXMR: Howard A. Birmiel
LEGAL-REP: Wenderoth, Lind & Ponack
16:48:16 COPY AND CLEAR PAGE, PLEASE
30 JUL 87 16:48:27 U.S. Patent & Trademark Office P0058

4,574,632 Mar. 11, 1986 L6: 2 of 24
Method for generating high frequency high level noise fields using low frequency excitation of aeroacoustic noise

ABSTRACT:
There is described a system for producing noise particularly for sonic testing of an article, such as a satellite, in a reverberation chamber. In one of its aspects the system comprises a low frequency high-level broad-band noise source; a tube means including a section formed as an acoustic horn connected at its small end to the low frequency source and at its large end to the chamber. A Hartmann-type air acoustic high level noise generator, or generators are located inside the tube at a predetermined position. In operation the generator is excited by the generated low frequency noise to provide an output of non-linearly modulated noise. Also described is a Hartmann-type noise generator which comprises a nozzle and an aligned
16:48:27 COPY AND CLEAR PAGE, PLEASE
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4,574,632 Mar. 11, 1986 L6: 2 of 24
Method for generating high frequency high level noise fields using low frequency excitation of aeroacoustic noise

acoustic tube spaced therefrom by an air gap. A reverberation cup is formed in the mouth of the tube facing the nozzle and a bridge member extends between the nozzle and tube and spans the air gap. Means is provided for varying the depth of the reverberation cup and for adjusting the size of the gap if desired.
23 Claims, 10 Drawing Figures

=> d l6 6,9,10 fro
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30 JUL 87 16:50:16 U.S. Patent & Trademark Office P0060

4,372,239 [IMAGE AVAILABLE] Feb. 8, 1983 L6: 6 of 24
Undersea weapon with hydropulse system and periodical seawater admission

INVENTOR: Allen C. Hagelberg, Diamond Bar, CA
Clark E. Allardt, Claremont, CA
Walter A. Lobitz, Westwood, CA
Robert O. Thornburg, Blue Jay, CA
George F. Zimmerman, Diamond Bar, CA
Gary L. Letterman, Alta Loma, CA
John W. Helbron, Upland, CA
ASSIGNEE: General Dynamics, Pomona Division, Pomona, CA (U.S. corp.)
APPL-NO: 6/126,782
DATE FILED: Mar. 3, 1980
INT-CL: [3] F42B 19*00
US-CL-ISSUED: 114*20A, 25; 367*133
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30 JUL 87 16:50:24 U.S. Patent & Trademark Office P0061

4,372,239 [IMAGE AVAILABLE] Feb. 8, 1983 L6: 6 of 24
Undersea weapon with hydropulse system and periodical seawater admission

US-CL-CURRENT: 114*20.2, 25; 367*96, 133
SEARCH-FLD: 114*20A, 25; 367*131-135
REF-CITED:

U.S. PATENT DOCUMENTS

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1,315,352	9/1919	Torazzi	114*20
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2,714,800	8/1955	Gongwer	60*221
2,903,850	9/1959	Lang	60*221
2,938,481	5/1960	Maxwell et al.	
2,971,325	2/1961	Gongwer	60*221 X

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3,000,306	9/1961	Wenzel et al.	60*245 X
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3,079,753	3/1963	Gongwer	60*227
3,088,403	5/1963	Bartling et al.	
3,102,505	9/1963	Dickieson	114*25 X
3,107,486	10/1963	Linderfelt	60*221
3,137,997	6/1964	Kaminstein	60*221
3,154,041	10/1964	McKinnon	114*25 X
3,157,992	11/1964	Kemenczky	60*221
3,163,980	1/1965	Turner	60*221
3,335,685	8/1967	Gimbel	114*333
3,354,648	11/1967	Asahina	60*221

4,372,239 [IMAGE AVAILABLE] Feb. 8, 1983 L6: 6 of 24
Undersea weapon with hydropulse system and periodical seawater admission

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3,738,270	6/1973	Hargett et al.	102*7
3,853,081	12/1974	Daudelin et al.	114*20A
3,872,665	3/1975	Jarry	60*221
3,875,552	4/1975	Hogman et al.	114*25 X
3,914,935	10/1975	Burkes, Jr.	60*250 X
3,951,094	4/1976	Jastrom	60*221 X
4,186,373	1/1980	Thompson	367*134 X
4,200,920	4/1980	Evans et al.	114*25 X
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FOREIGN PATENT DOCUMENTS

933570	8/1963	United Kingdom	114*20A

4,372,239 [IMAGE AVAILABLE] Feb. 8, 1983 L6: 6 of 24
Undersea weapon with hydropulse system and periodical seawater admission

PRIM-EXMR: Peter A. Nelson
LEGAL-REP: Henry M. Bissell, Edward B. Johnson

ABSTRACT:
An undersea weapon comprising a warhead, a rocket motor, detection, homing and control systems and a hydropulse underwater propulsion system in an integral unit. The weapon is launched at a previously detected target, such as a submarine, on a ballistic trajectory through the air by means of the rocket motor. The weapon enters the water near the submarine, which is thereafter detected by an on-board system incorporating active and/or passive detection. The thus-determined submarine direction is utilized by the control system to guide the weapon toward the submarine under water. A hydropulse motor utilizes the empty rocket motor as the propulsion

4,372,239 [IMAGE AVAILABLE] Feb. 8, 1983 L6: 6 of 24
Undersea weapon with hydropulse system and periodical seawater admission

chamber and provides the underwater propulsion to propel the weapon through the water toward the submarine, where the warhead then detonates on contact with the submarine. Alternatively, the weapon may be air dropped near a previously detected target, in which case there need be no propellant in the rocket motor. The hydropulse motor operates by repeatedly filling the chamber with water and expelling the water at high velocity through a

pulses, the detection system monitors the submarine free of noise from the on-board propulsion motor.

25 Claims, 9 Drawing Figures

4,319,660 Mar. 16, 1982 L6: 9 of 24

Mechanical noise suppressor for small rocket motors

INVENTOR: Charles R. Bishop, Arab, AL
ASSIGNEE: The United States of America as represented by the Secretary of the Army, Washington, DC (U.S. govt.)
APPL-NO: 6/183,604
DATE FILED: Sep. 2, 1980
INT-CL: [3] F01N 1*24
US-CL-ISSUED: 181*222, 258
US-CL-CURRENT: 181*222, 258
SEARCH-FLD: 181*222, 223, 247-248, 252, 256-258; 60*254, 264; 239*265.15, 265.19
REF-CITED:

U.S. PATENT DOCUMENTS

1,127,250	2/1915	Humm	181*223

4,319,660 Mar. 16, 1982 L6: 9 of 24

Mechanical noise suppressor for small rocket motors

1,554,534	9/1925	Straussler	181*258
2,855,068	10/1958	Chapel	181*252
3,521,429	7/1970	Leffler	181*256 X

FOREIGN PATENT DOCUMENTS

2232559	1/1974	Federal Republic of Germany	181*257

PRIM-EXMR: L. T. Hix
ASST-EXMR: Thomas H. Tarcza
LEGAL-REP: Nathan Edelberg, Robert P. Gibson, Harold W. Hilton

ABSTRACT:
A noise suppressor for small rocket motors including a plurality of perforated metal cylinders disposed in concentric relation and secured to a

4,319,660 Mar. 16, 1982 L6: 9 of 24

Mechanical noise suppressor for small rocket motors

support plate. A noise suppression material is disposed in the chamber of each adjacent cylinder. Noise suppression material is also disposed in the center cylinder and is expelled by the rocket motor thrust. A collar on the support plate secures the motor to the suppressor.

4 Claims, 2 Drawing Figures

4,312,054 [IMAGE AVAILABLE] Jan. 19, 1982 L6: 10 of 24

Acoustic beacons

INVENTOR: Bard Holand, Trondheim, Norway
ASSIGNEE: SINTEF (Selskapet for industriell og teknisk forskning ved NTH), Trondheim, Norway (foreign corp.)

4,312,054 [IMAGE AVAILABLE] Jan. 19, 1982 L6: 10 of 24

Acoustic beacons

DATE FILED: Jul. 7, 1980
INT-CL: [3] H04B 11*00
US-CL-ISSUED: 367*134, 137, 142, 910
US-CL-CURRENT: 367*134, 137, 142, 910
SEARCH-FLD: 367*134, 137, 142, 910; 200*61.04, DIG.5; 340*850
REF-CITED:

U.S. PATENT DOCUMENTS

3,038,143	6/1962	Dow	367*134
3,611,276	10/1971	Massa	367*134
3,686,656	8/1972	Richards	367*142
3,798,692	3/1974	Madeley	340*850 X

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30 JUL 87 16:52:22 U.S. Patent & Trademark Office P0070

4,312,054 [IMAGE AVAILABLE] Jan. 19, 1982 L6: 10 of 24
Acoustic beacons

PRIM-EXMR: Richard A. Farley

ABSTRACT:
Acoustic beacon for use at sea and having a pipe-shaped housing in the one end of which is space for a battery which drives a transmitter disposed coaxially around the housing at the other end where there is arranged a pressure switch covered by a membrane. The transmitter is switched on by the pressure switch when the pressure on the outside of the membrane exceeds a certain limit when the beacon falls in water.
2 Claims, 1 Drawing Figures

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16:53:05 COPY AND CLEAR PAGE, PLEASE
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4,153,134 [IMAGE AVAILABLE] May 8, 1979 L6: 17 of 24
Underwater seismic source

INVENTOR: Lien C. Yang, La Canada, CA
ASSIGNEE: The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, DC (U.S. govt.)
APPL-NO: 5/830,458
DATE FILED: Sep. 6, 1977
INT-CL: [2] G01V 1*38
US-CL-ISSUED: 181*120; 340*12R; 181*115
US-CL-CURRENT: 181*120, 115; 367*142
SEARCH-FLD: 181*115, 118, 120; 340*12R; 175*1; 166*299
REF-CITED:

U.S. PATENT DOCUMENTS

2,069,242	2/1937	Graham	340*12R

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30 JUL 87 16:53:20 U.S. Patent & Trademark Office P0072

4,153,134 [IMAGE AVAILABLE] May 8, 1979 L6: 17 of 24
Underwater seismic source

3,039,559	6/1962	Ellsworth	340*12R
3,176,787	4/1965	Roever	340*12R
3,444,953	5/1969	Cholet	181*115
3,588,801	6/1971	Leonard	181*115
3,620,327	11/1971	Savit	181*118
3,658,005	4/1972	Byrne	340*12R
3,740,708	6/1973	Phillips	181*120

FOREIGN PATENT DOCUMENTS

2300346	8/1976	France	181*120

PRIM-EXMR: Howard A. Birmiel

4,153,134 [IMAGE AVAILABLE] May 8, 1979 L6: 17 of 24

Underwater seismic source

ABSTRACT:
Apparatus for generating a substantially oscillation-free siesmic signal for use in underwater petroleum exploration, including a bag with walls that are flexible but substantially inelastic, and a pressured gas supply for rapidly expanding the bag to its fully expanded condition. The inelasticity of the bag permits the application of high pressure gas to rapidly expand it to full size, without requiring a venting mechanism to decrease the pressure as the bag approaches a predetermined size to avoid breaking of the bag.

5 Claims, 6 Drawing Figures

3,903,988 [IMAGE AVAILABLE] Sep. 9, 1975 L6: 24 of 24

Rocket noise generator

INVENTOR: Robert William Hermsen, Palo Alto, CA
Paul G. Willoughby, Santa Clara, CA
ASSIGNEE: The United States of America as represented by the Secretary of the Navy, Washington, DC (U.S. govt.)

APPL-NO: 4/766,700
DATE FILED: Oct. 11, 1968
INT-CL: [2] G10K 10*00
US-CL-ISSUED: 181*142; 116*137A
US-CL-CURRENT: 181*142; 116*137A
SEARCH-FLD: 116*137A, 137; 181*0.5J, 142, 159, 110, 118, 120, 39; 114*20; 60*254, 35.6RS; 340*3E, 7R

REF-CITED:

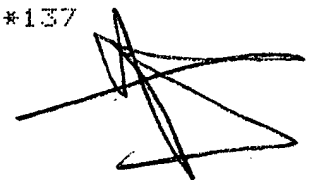
S U.S. PATENT DOCUMENT

3,903,988 [IMAGE AVAILABLE] Sep. 9, 1975 L6: 24 of 24

Rocket noise generator

3,326,467 6/1967 Fortman 116*137

PRIM-EXMR: Maynard R. Wilbur
ASST-EXMR: T. M. Blum
LEGAL-REP: Richard S. Sciascia, Don D. Doty



ABSTRACT:
A combination underwater rocket-ultrasonic noise generator having variously configured and located slots disposed in the inside wall of the rocket driving exhaust nozzle.

16 Claims, 6 Drawing Figures

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